Cocoa sustainability and fertilization stakes : the case of Côte d'Ivoire

Hamburg, October 8-9, 2008
WCF conference
14th partnership meeting

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The history of fertilizer adoption by cocoa farmers in West-Africa is relatively recent.

Côte d'Ivoire smallholders (and more specifically the Soubré cocoa belt) started to test fertilisers in the 1980s and its adoption became visible in the late 1990s

The very first farmers' objective was not to increase yields but to save their dying cocoa trees. This played a major role in the production increase. First of all, it prevented a collapse of production in the entire cocoa belt of Soubré. In 2003, the approximate 70,000 tonnes of fertilizers probably generated 150,000 tonnes of cocoa (of course interacting with other factors)

However Côte d'Ivoire is loosing its early advantage

- The trend in adoption rates in two major cocoa belts of Côte d’Ivoire

- Its impact on cocoa yields. Economic stakes and alarming signals

- What to do?

Let’s start with the ‘concept of cocoa farm life cycle’

This is real

….

But not the whole story

….

Soubre, Aug. 2008
(CIRAD Photo)

This is (often) the next step

Soubre, Aug. 2008 (CIRAD Photo)

Rates of fertilizer adoptionand impact on yields
The showcase of ‘Wes-San Pedro

After the 2002/03 jump in fertilizer adoption and cocoa yields, the decline in yields logically seems correlated to the collapse of fertilizer adoption.

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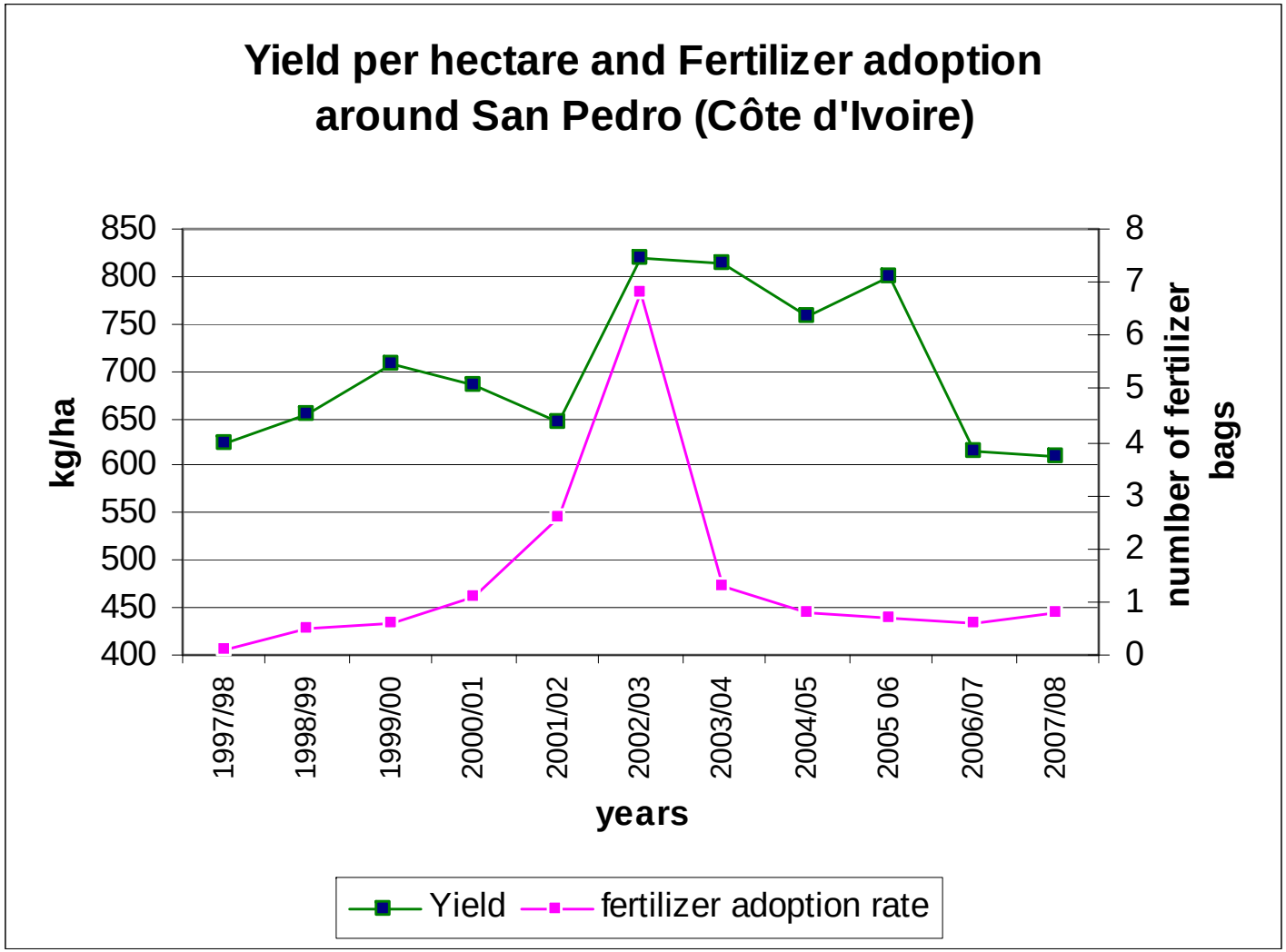

Once information reaches farmers, the rate of fertilizer adoption looks strongly influenced by the producer price (and revenues)

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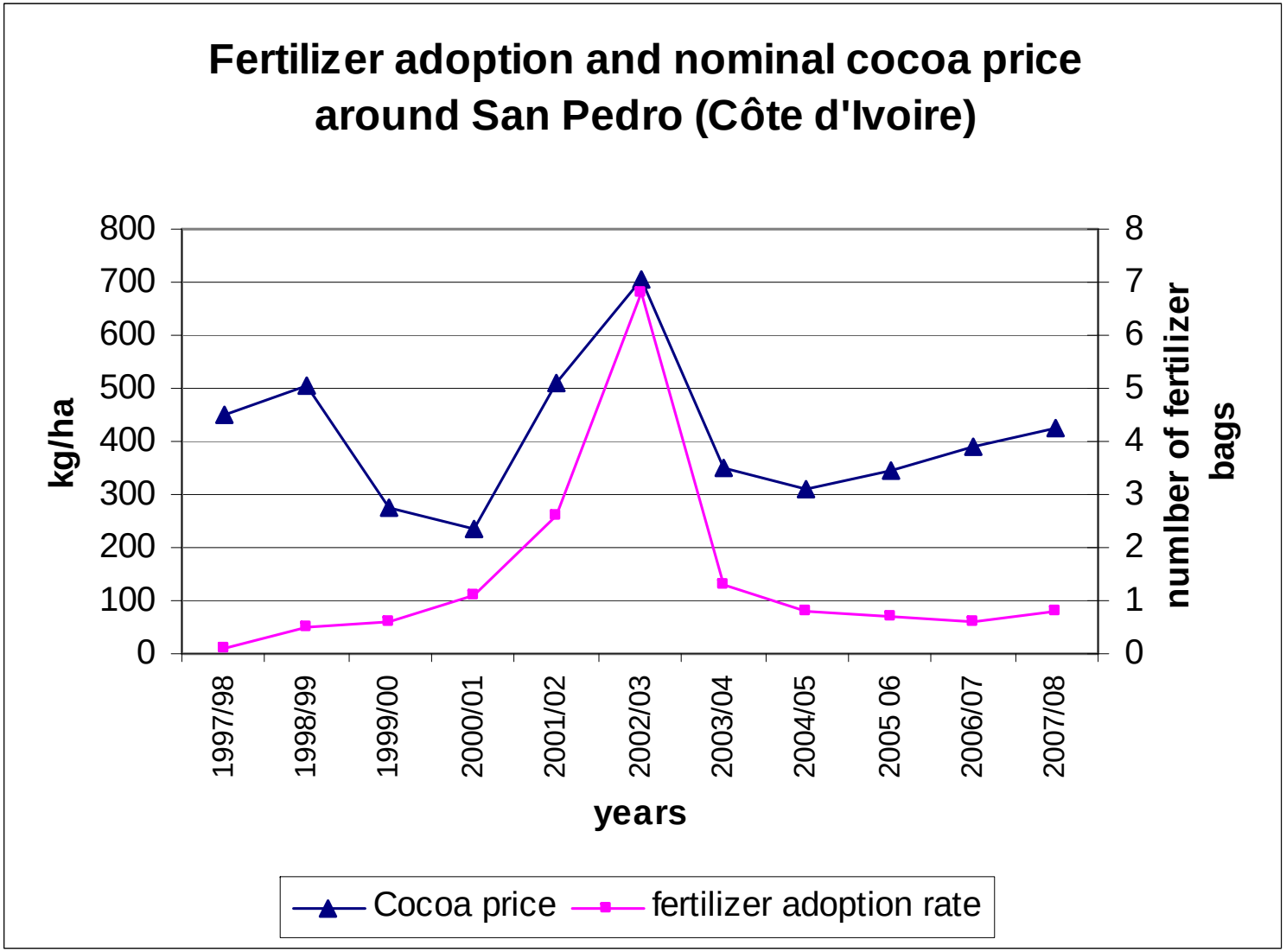

In Soubré, the major coca belt of the country in the 1990s and early 2000s, the impoortance of fertilizers seems still more convincing

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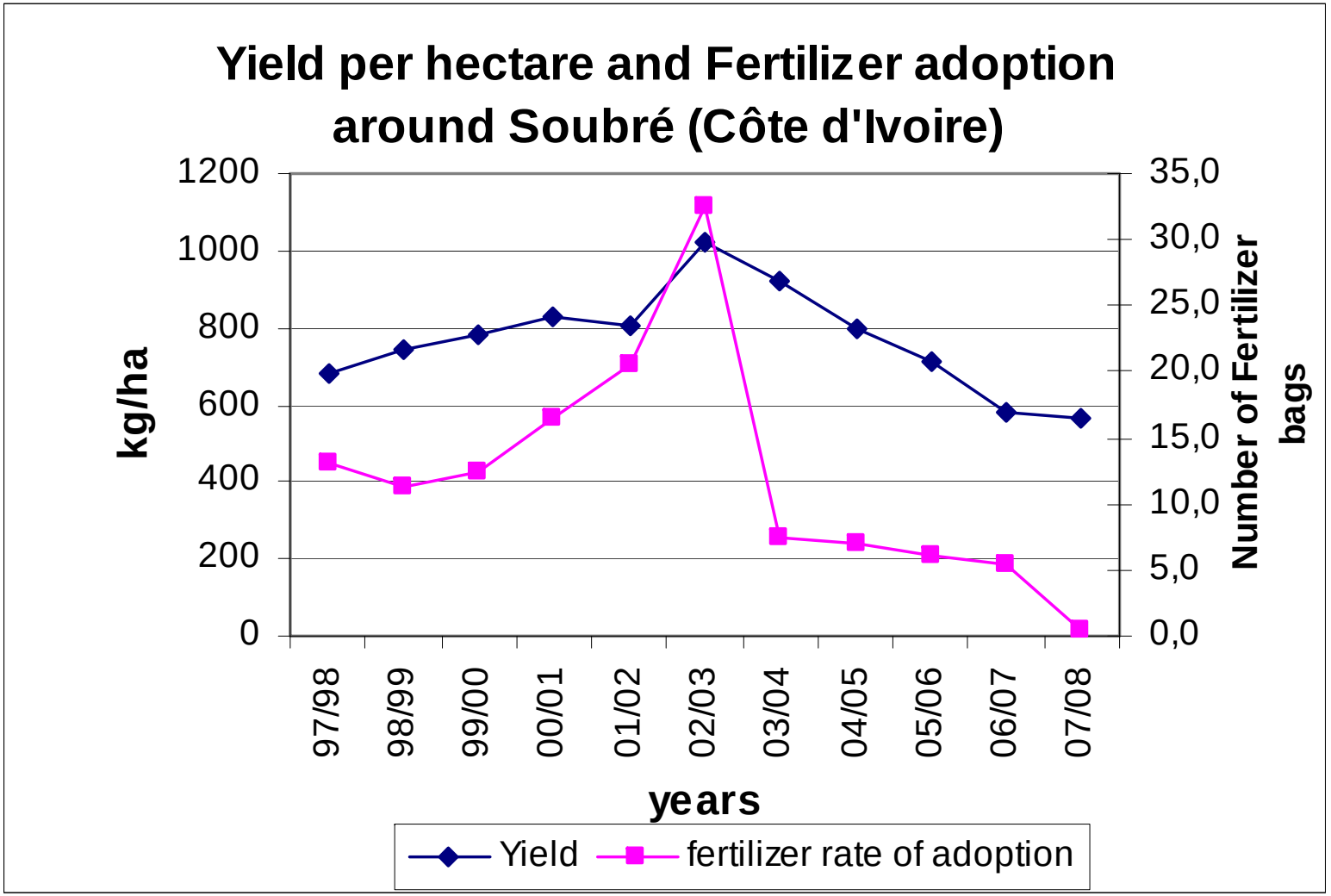

An (audacious) comparison between national production and ‘West-San Pedro’ yields would suggest that

- The 2002/03 jump in production compensated some decline in other regions
- The strong decline in San Pedro 2006/07 and 2007/08 seems to be offset by other emerging cocoa regions

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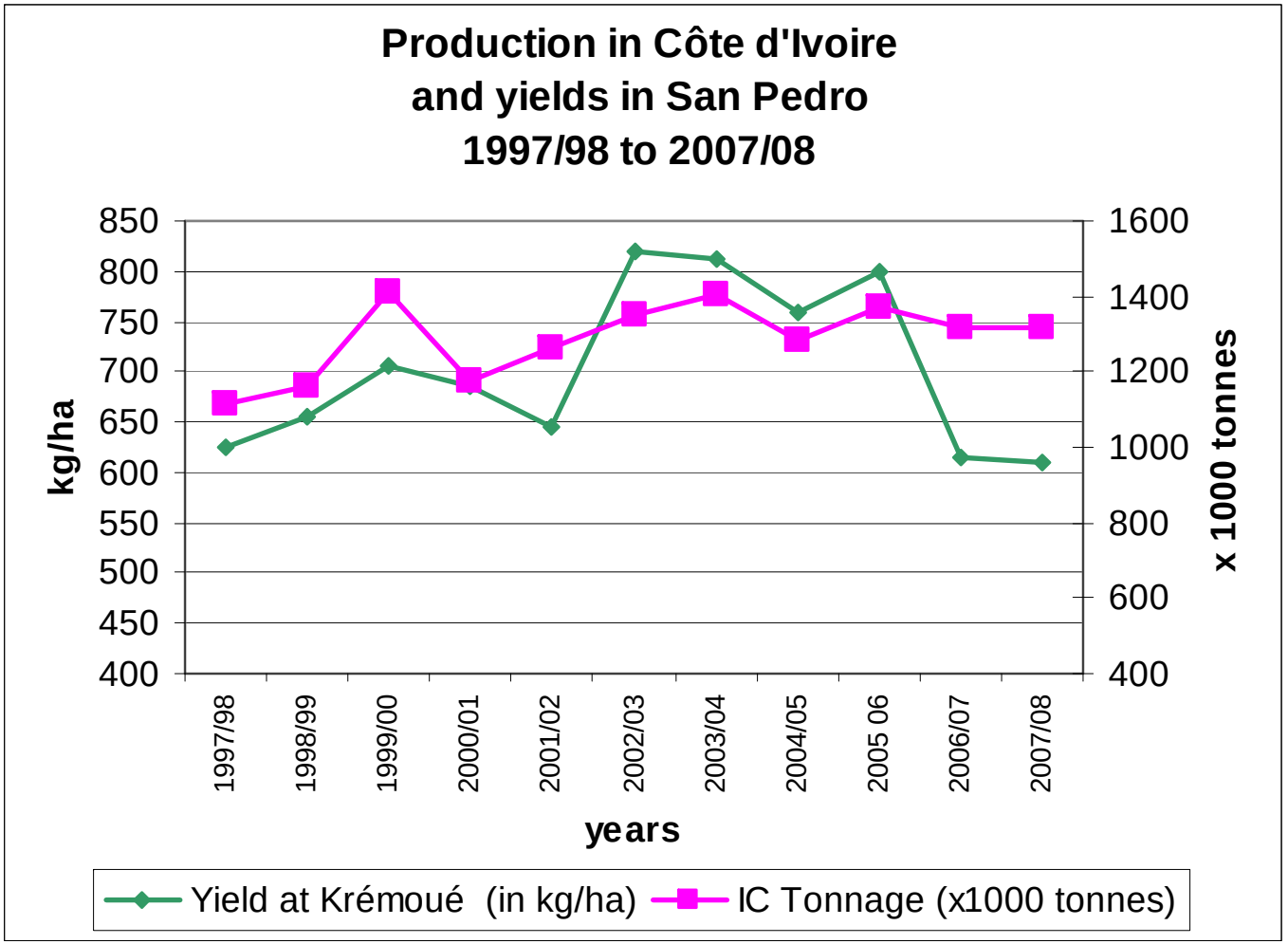

Key lessons

- This sudden production shifts could be interpreted as ‘accelerated regional cycles’
- This is worrying in terms of cocoa sustainability
- Technically, the expansion of cocoa in regions with soils ‘unsuited’ to cocoa and the lack of fertilizer seems to be the main determining factors
- Fertilizer adoption looks like a key factor of sustainability
- It is enormously influenced by the level of the producer price

About the efficiency of fertilizers and its interaction with other factors

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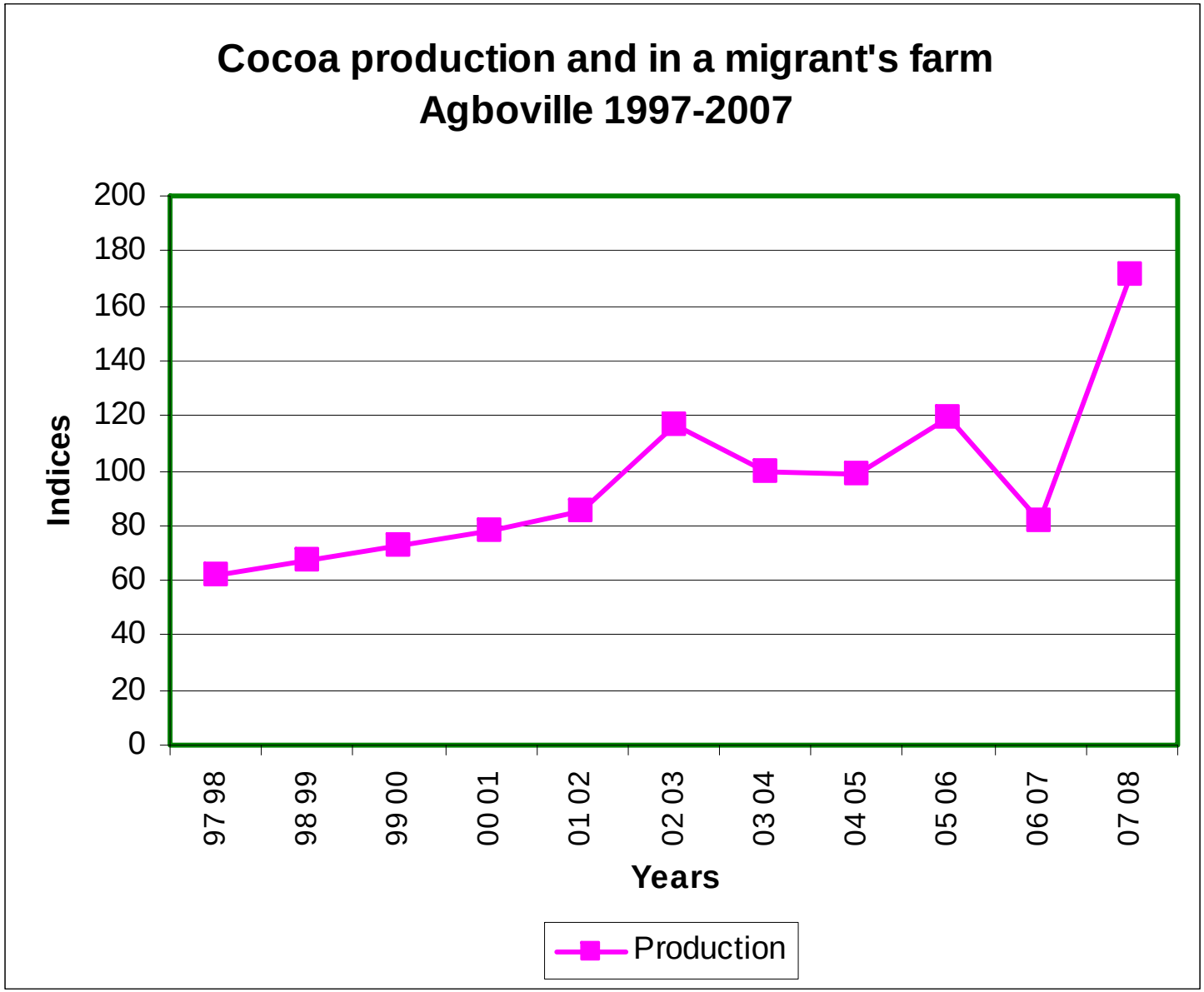

The very first determining factor of production remains the producive surface

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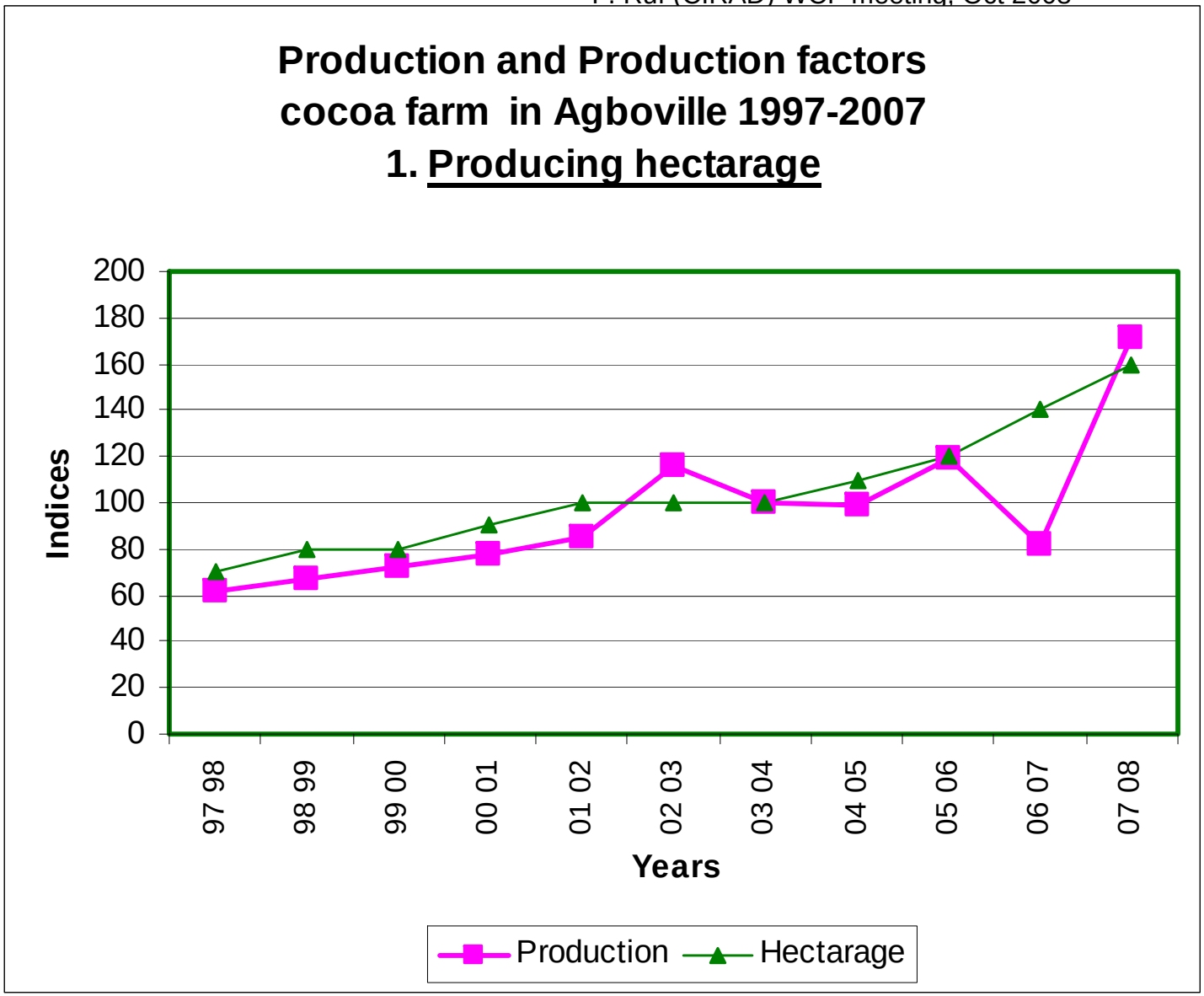

About the efficiency of fertilizers:
- a likely significant impact of the 25 bags in 2006/07
- No-impact in 2003/04?

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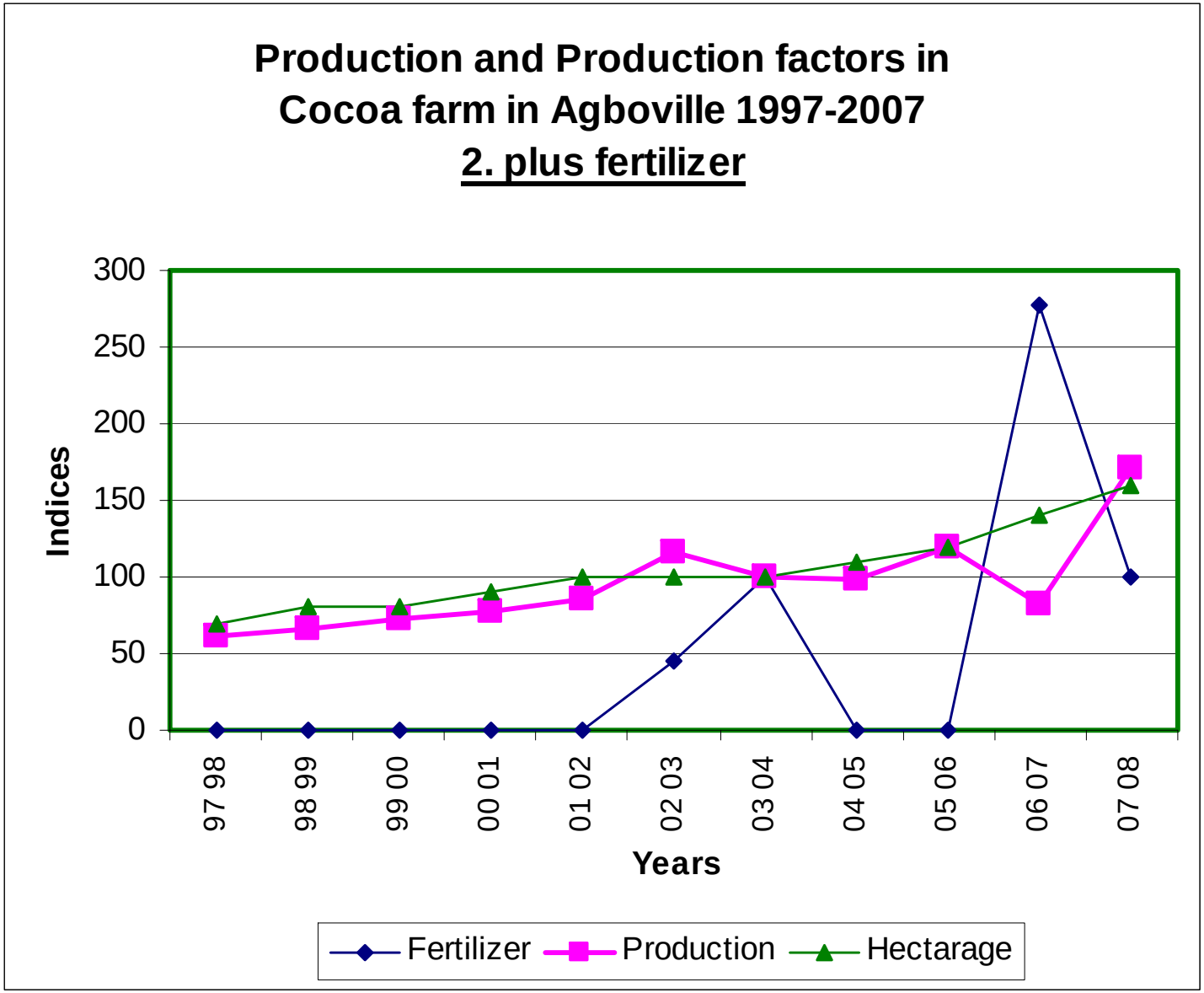

2003/04 : Fertilizer efficiency is reduced … if labour is lacking

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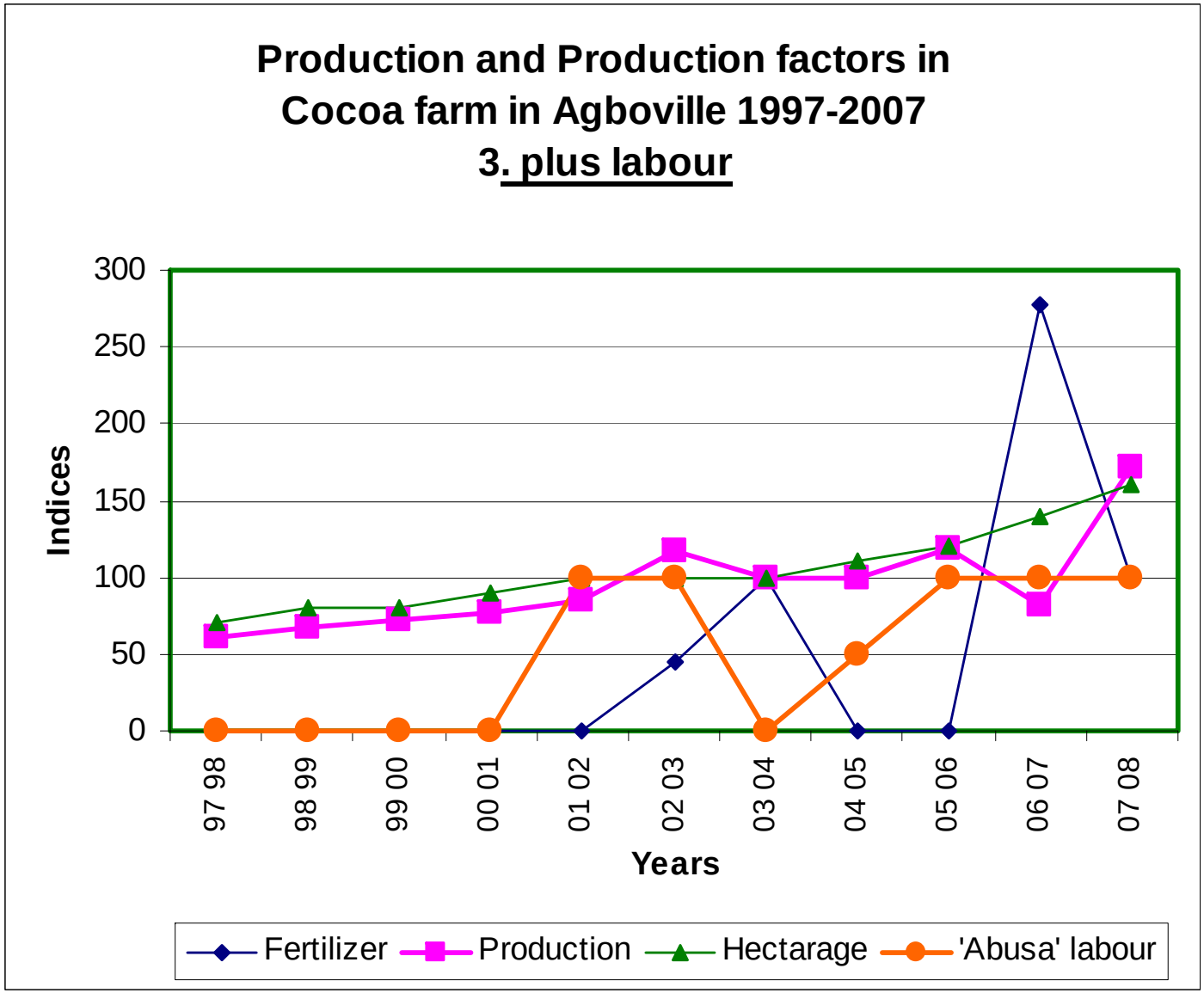

With labour and non-labour inouts increasing productivity, replanting (has to be) the ‘next step’

Soubre, Aug. 2008 (CIRAD Photo)

Conclusion

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- Despite or because of interaction with rainfall patterns and other factors, especially labour, the rate of fertilizer adoption has become a crucial determining factor of yields and cocoa sustainability

- After a beginning of 'green revolution' in the late 1990s/early 2000s, the global trend from 2003 to 2008 is nothing else than a structural decline of yields per hectare.

- An ageing process partially accounts for that trend, but this is precisely a source of heavy concern, since ageing can be somehow compensated by fertilizer application.

- Both variables (fertilizer adoption and yields) are strongly influenced by the producer price

- In terms of policy implication, this survey leads to a clear conclusion: if Côte d'Ivoire does not want to observe a rapid decline of its established cocoa farms, a specific effort is required on
  - the producer price,
  - and technically on the re-fertilization of farms and fallow-land (possibly associating chemical and organic fertilizer).